

# Eclipse Plug-in Development Research Project

## Report 10



**UNIVERSITY AT BUFFALO**

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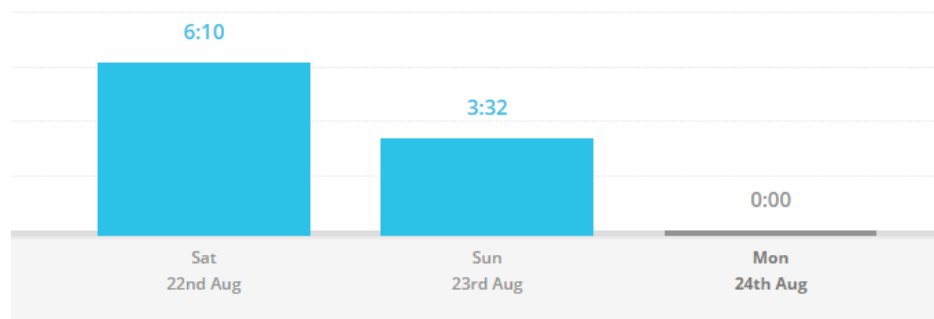
## Report 10

### Introduction

This week, I have changed the output design as well as saving individual recorded file for each different Java Project. Other than some minor fixes on the project, I also update the project on GitHub.

### Synopsis

I spend around 10 hours on this project for this week.



<u>Eclipse Plugin</u>	9:42:00
Fixing the location of recorded file	6:10:00
Update Github, some tiny changes on the project	3:32:00

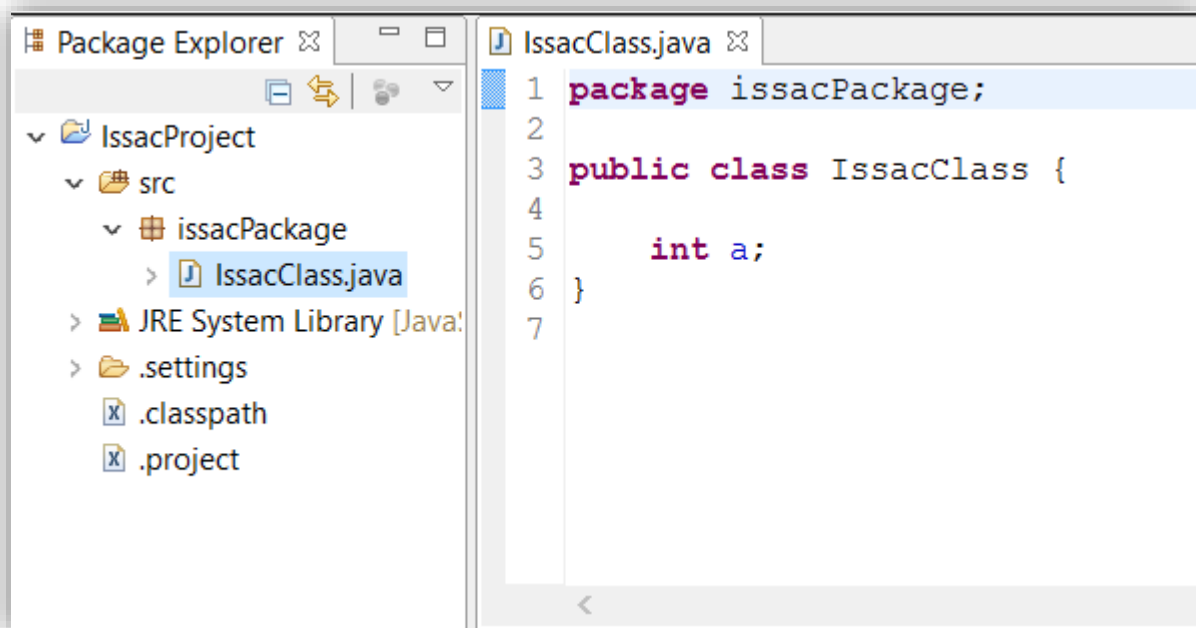
## Explanation of content

Each of the Java Project will have their own recorded file at the same directory of the Java Project. If the user decides to switch over to another Java Project, the current recorded file will be stopped and the recorded file for the other Java Project will be initiated. That way, each recorded file will only be recording the events of their Java Project. There will also be another recorded file sitting at the location of eclipse folder keeping track of how many times the eclipse plugin has been triggered. Not a very important feature but just for fun.

I also standardize the output pattern. First goes to the time stamp, second goes to the fully qualified name if it's a CompilationUnit change, else it would be the event name. Third goes to the detail of specific changes if it's a CompilationUnit change. Check out demonstration section below.

## Demonstration

Let's start with only one existing project, named IssacProject. It has a java file and it's already open on the right panel. Let's mess around a little bit.



We modify the CompilationUnit. Just some simple adding and removing elements. Snapshot below shows the output in system console.

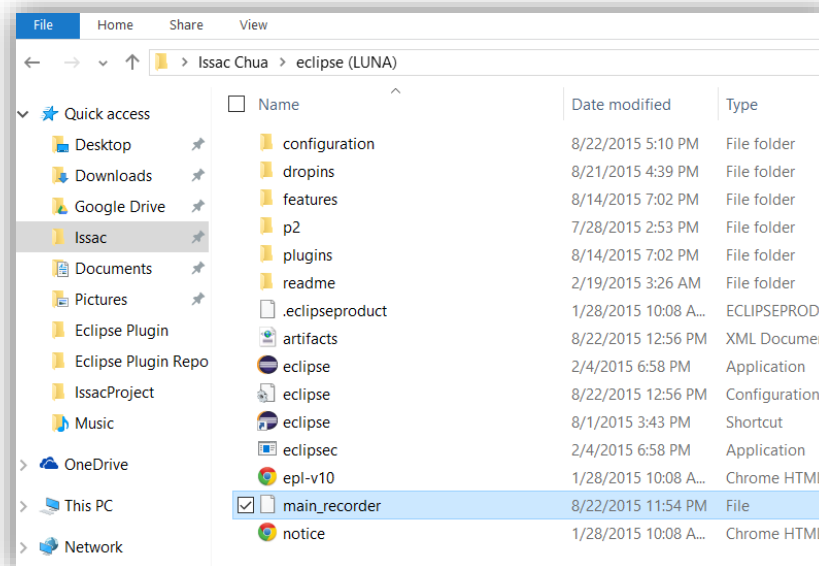
```
2015.08.22 at 23:54:41 EDT [LISTENER INITIALIZATION]
2015.08.22 at 23:55:31 EDT [INITIALIZE PLUGIN]
package issacPackage;
public class IssacClass {
    int a;
}

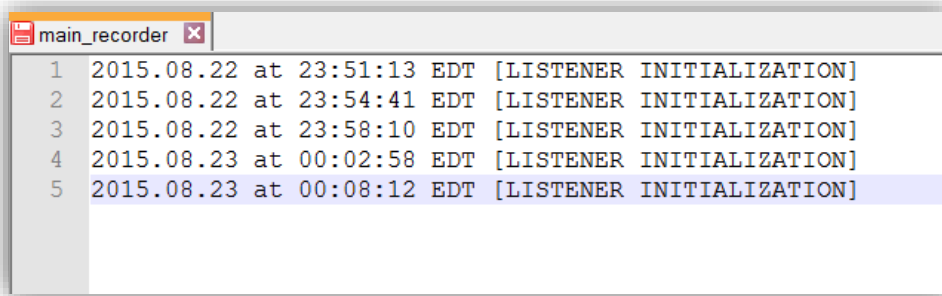
2015.08.22 at 23:59:45 EDT [issacPackage.IssacClass] [ADDED LINE] : 6 $ [FIELD_DECLARATION] (
2015.08.22 at 23:59:45 EDT [issacPackage.IssacClass] [ADDED LINE] : 7 $ [FIELD_DECLARATION] (
2015.08.22 at 23:59:45 EDT [issacPackage.IssacClass] [ADDED LINE] : 8 $ [FIELD_DECLARATION] (
2015.08.22 at 23:59:53 EDT [issacPackage.IssacClass] [ADDED LINE] : 10 $ [METHOD_DECLARATION]
2015.08.22 at 23:59:56 EDT [issacPackage.IssacClass] [ADDED LINE] : 12 $ [VARIABLE_DECLARATION]
2015.08.22 at 23:59:56 EDT [issacPackage.IssacClass] [ADDED LINE] : 13 $ [VARIABLE_DECLARATION]
2015.08.23 at 00:00:11 EDT [issacPackage.IssacClass] [REMOVED LINE] : 6 $ [FIELD_DECLARATION]
2015.08.23 at 00:00:11 EDT [issacPackage.IssacClass] [REMOVED LINE] : 7 $ [FIELD_DECLARATION]
2015.08.23 at 00:00:11 EDT [issacPackage.IssacClass] [REMOVED LINE] : 8 $ [FIELD_DECLARATION]
2015.08.23 at 00:00:13 EDT [issacPackage.IssacClass] [REMOVED LINE] : 9 $ [VARIABLE_DECLARATION]
```

As you can see, everything is lined up properly and categorized nicely.

We see that we have one [LISTENER INITIALIZATION] at the very first line. Every time you start the eclipse application, this line will be written into the recorded file inside Eclipse folder. Basically, the idea is just to see how many times the Eclipse application has run. Nothing more than that.

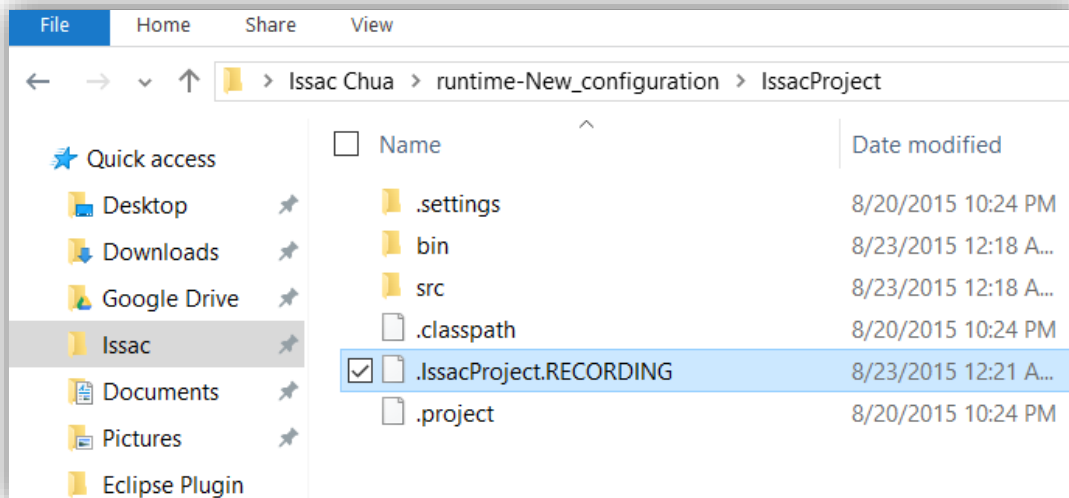
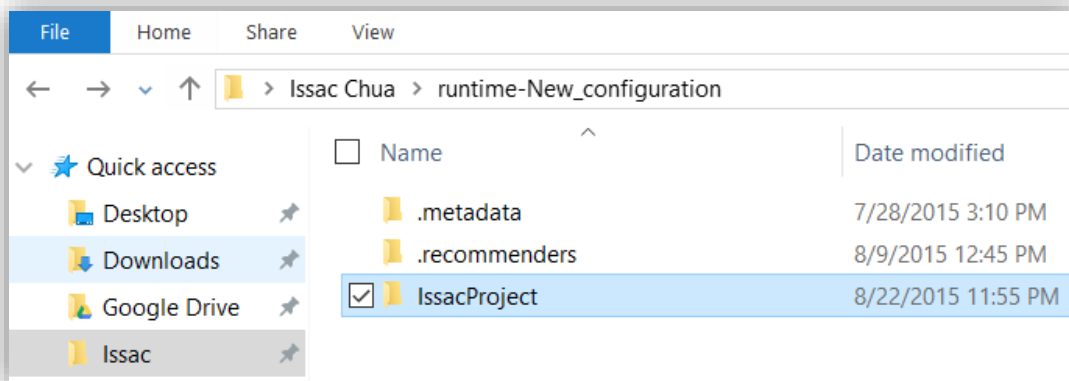
When we navigate to Eclipse folder, we see that there is one file named “main\_recorder”.





The file looks something like this. It shows how many times the plugin has triggered.

Let's do some changes inside the Java Project, such as creating new java class file, new package, renaming existing file, deleting file and so on. If we navigate to the directory of IssacProject, we will see that there is a file called ".IssacProject.RECORDING".



```

1 2015.08.22 at 23:55:31 EDT [INITIALIZE PLUGIN]
2 package issacPackage;
3 public class IssacClass {
4     int a;
5 }
6
7 2015.08.22 at 23:59:45 EDT [issacPackage.IssacClass] [ADDED LINE] : 6 $ [FIELD_DECLAR
8 2015.08.22 at 23:59:45 EDT [issacPackage.IssacClass] [ADDED LINE] : 7 $ [FIELD_DECLAR
9 2015.08.22 at 23:59:45 EDT [issacPackage.IssacClass] [ADDED LINE] : 8 $ [FIELD_DECLAR
10 2015.08.22 at 23:59:53 EDT [issacPackage.IssacClass] [ADDED LINE] : 10 $ [METHOD_DECLA
11 2015.08.22 at 23:59:56 EDT [issacPackage.IssacClass] [ADDED LINE] : 12 $ [VARIABLE_DE
12 2015.08.22 at 23:59:56 EDT [issacPackage.IssacClass] [ADDED LINE] : 13 $ [VARIABLE_DE
13 2015.08.23 at 00:00:11 EDT [issacPackage.IssacClass] [REMOVED LINE] : 6 $ [FIELD_DECLA
14 2015.08.23 at 00:00:11 EDT [issacPackage.IssacClass] [REMOVED LINE] : 7 $ [FIELD_DECLA
15 2015.08.23 at 00:00:11 EDT [issacPackage.IssacClass] [REMOVED LINE] : 8 $ [FIELD_DECLA
16 2015.08.23 at 00:00:13 EDT [issacPackage.IssacClass] [REMOVED LINE] : 9 $ [VARIABLE_DE
17 2015.08.23 at 00:17:48 EDT [ADD COMPILATION_UNIT]: IssacClass2.java (not open) [in iss
18 2015.08.23 at 00:17:49 EDT [CHANGE COMPILATION_UNIT TO issacPackage.IssacClass2]
19 package issacPackage;
20 public class IssacClass2 {
21 }
22
23 2015.08.23 at 00:18:17 EDT [ADD PACKAGE_FRAGMENT]: issacPackage2 (not open) [in src [:
24 2015.08.23 at 00:18:48 EDT [REMOVE COMPILATION_UNIT]: [Working copy] IssacClass.java

```

As you can see, all the changes are all recorded into the file, such as [CHANGE COMPILATION\_UNIT TO issacPackage.IssacClass2], [ADD PACKAGE\_FRAGMENT], and etc. What happens if we are creating a new Java Project? Let's see what happens.

```

2015.08.23 at 00:28:47 EDT [ADD JAVA_PROJECT]: CarlProject (not open)
2015.08.23 at 00:28:58 EDT [ADD PACKAGE_FRAGMENT]: carlPackage (not open) [in src [in CarlPro
2015.08.23 at 00:29:53 EDT [ADD COMPILATION_UNIT]: CarlClass.java (not open) [in carlPackage
2015.08.23 at 00:29:54 EDT [CLOSE PLUGIN]
2015.08.23 at 00:29:54 EDT [INITIALIZE PLUGIN]
2015.08.23 at 00:30:03 EDT [CHANGE COMPILATION_UNIT TO carlPackage.CarlClass]
package carlPackage;
public class CarlClass {
    int a;
    int b;
    int c;
}

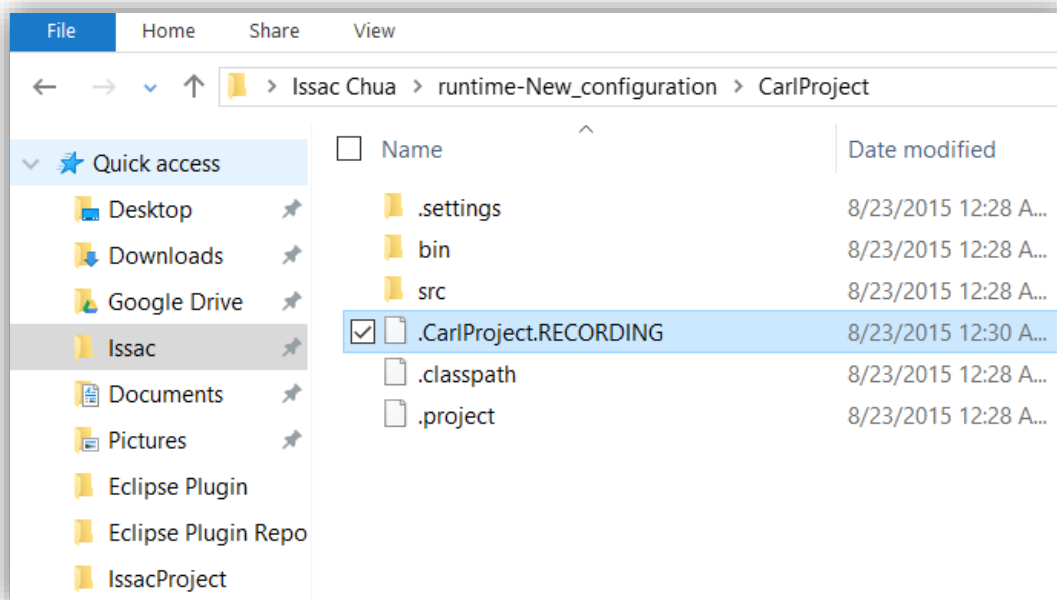
```

You might be confused at this stage. Why the plugin is closed and initialize again? Let's navigate to the output recorded file of IssacProject (same as earlier) and see.

```
main_recorder x .IssacProjectRECORDING x
30 2015.08.23 at 00:18:48 EDT [REMOVE COMPILATION_UNIT]: IssacClass.java (not open) [in : ^
31 2015.08.23 at 00:18:49 EDT [CHANGE COMPILATION_UNIT TO issacPackage.IssacClassNew]
32 package issacPackage;
33 public class IssacClassNew {
34     int a;
35     public void method(){
36         int e;
37     }
38 }
39
40 2015.08.23 at 00:18:49 EDT [CHANGE COMPILATION_UNIT TO issacPackage.IssacClass2]
41 package issacPackage;
42 public class IssacClass2 {
43 }
44
45 2015.08.23 at 00:21:27 EDT [issacPackage.IssacClass2] [ADDED LINE] : 6 $ [FIELD_DECLAI
46 2015.08.23 at 00:21:27 EDT [issacPackage.IssacClass2] [ADDED LINE] : 7 $ [FIELD_DECLAI
47 2015.08.23 at 00:21:27 EDT [issacPackage.IssacClass2] [ADDED LINE] : 8 $ [FIELD_DECLAI
48 2015.08.23 at 00:28:47 EDT [ADD JAVA_PROJECT]: CarlProject (not open)
49 2015.08.23 at 00:28:58 EDT [ADD PACKAGE_FRAGMENT]: carlPackage (not open) [in src [in
50 2015.08.23 at 00:29:53 EDT [ADD COMPILATION_UNIT]: CarlClass.java (not open) [in carl
51 2015.08.23 at 00:29:54 EDT [CLOSE PLUGIN]
52
```

The last event is [CLOSE PLUGIN]. Where is the [INITIALIZE PLUGIN] then?

If we navigate to the CarlProject folder, we see that a “.CarlProject.RECORDING” file has been created.



Lastly, we restart the Eclipse application again and work on the CarlProject for a little bit. The new data is appended to the existing file. See the time on line 10 is when I close the project and line 11 is when I start the project again.

```
main_recorder x IssacProjectRECORDING x .CarlProjectRECORDING x
1 2015.08.23 at 00:29:54 EDT [INITIALIZE PLUGIN]
2 2015.08.23 at 00:30:03 EDT [CHANGE COMPILATION_UNIT TO carlPackage.CarlClass]
3 package carlPackage;
4 public class CarlClass {
5     int a;
6     int b;
7     int c;
8 }
9
10 2015.08.23 at 00:37:59 EDT [CLOSE PLUGIN]
11 2015.08.23 at 00:39:57 EDT [INITIALIZE PLUGIN]
12 package carlPackage;
13 public class CarlClass {
14     int a;
15     int b;
16     int c;
17     int naT;
18 }
19
20 2015.08.23 at 00:40:05 EDT [carlPackage.CarlClass] [ADDED LINE] : 9 $ [FIELD_DECLARATION]
21 2015.08.23 at 00:40:05 EDT [carlPackage.CarlClass] [ADDED LINE] : 10 $ [FIELD_DECLARATION]
22
```

<https://github.com/issacchern/Sapphire>



## Conclusion

This might be the last report about the whole plugin development process. I think this plugin is ready to go for public testing, unless there are few more things that professors would like me to add in.

To be honest, I am really enjoying doing this project and I think it is a really fun project to work on. At first, I couldn't get a lot done because of unfamiliarity and lack of experience in developing eclipse plugin. I couldn't understand how any of this works, and I was a bit down for not producing anything useful. Every time before meeting up with professors, I would push myself at least making some progress. I am grateful to have such understanding and wonderful professors as my guidance, helping me getting through the problems while developing the plugin. The moment I realized what and how to do for the plugin project, I started working non-stop, days to nights, and I couldn't stop thinking of it all the time. I made a very huge progress and now it is close to completion.

I am really happy to complete the project finally. Hope you guys like it too 😊

Thank you for your time!